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made to conform to this rule. It is never safe to infer from the mere presence of a bird in any particular locality in the breeding season that it necessarily breeds there. I could give you instances without number where birds are found in summer in localities, where, so far as one can ever be sure of a negative, we know they do not breed. We have seen the black-poll warbler in eastern Massachusetts as late as the 10th of June. Yet who supposes it ever breeds here? Dr. Abbott's account escaped my notice, but I certainly could not have made it the occasion of any change in my statement that the *Regulus* was not then *known* to breed in the United States. I could only have referred to the interesting fact of its occurrence, as stated, as suggestive of its possibility. Nothing short of its actual nest and eggs would have justified me in speaking of its breeding as a certainty. — THOMAS M. BREWER.

ZOOLOGY IN BELGIUM. — The Belgium Academy has lately issued two large octavo volumes, as memorials of its hundredth anniversary. The second volume is of great interest to zoologists as it contains a review of the progress of zoology in Belgium, by the veteran naturalist Prof. P. J. Beneden.

GEOLOGY.

SMALL SIZE OF THE BRAIN IN TERTIARY MAMMALS. — At the last meeting of the Connecticut Academy of Arts and Sciences, June 17th, Prof. Marsh made a communication on the size of the brain in Tertiary Mammals. His researches on this subject have been mainly confined to the larger extinct mammals which he had obtained in the Rocky Mountain region, and the results are of peculiar interest. The Eocene mammals all appear to have had small brains, and in some of them the brain cavity was hardly more capacious than in the higher reptiles. The largest Eocene mammals are the *Dinocerata*, which were but little inferior to the elephant in bulk. In *Dinoceras* Marsh, the type genus, the brain cavity is not more than one-eighth the average size of that in existing Rhinoceroses. In the other genera of this order, *Tinoceras* Marsh and *Uintatherium* Leidy, the smallness of the brain was quite as remarkable. The gigantic mammals of the American Miocene are the *Brontotheridæ*, which equalled the *Dinocerata* in size. In *Brontotherium* Marsh, the only genus of the family in which the skull is known, the brain cavity is very much larger than in the

Eocene *Dinoceras*, being about the size of the brain in the Indian Rhinoceros. In the Pliocene strata of the West, a species of *Mastodon* is the largest mammal, and although but little superior in absolute size to *Brontotherium*, it had a very much larger brain, but not equal to that of existing Proboscideans. The Tapiroid ungulates of the Eocene had small brain cavities, much smaller than their allies, the Miocene *Rhinocerotidae*. The Pliocene representatives of the latter group had well developed brains, but proportionally smaller than living species. A similar progression in brain capacity seems to be well marked in the equine mammals, especially from the Eocene *Orohippus*, through *Miohippus* and *Architherium* of the Miocene, *Pliohippus* and *Hipparion* of the Pliocene, to the recent *Equus*. In other groups of mammals, likewise, so far as observed, the size of the brain shows a corresponding increase in the successive subdivisions of the Tertiary. These facts have a very important bearing on the evolution of mammals, and open an interesting field for further investigation.

DEEP SEA SOUNDINGS.—The “Tuscarora,” Commander Belknap, duly reached Honolulu from San Diego, California, having been engaged in taking deep-sea soundings. She made a straight passage, not deviating twenty miles on either side of a direct line drawn between the two ports. During the passage sixty-two soundings were made, at a distance of forty miles apart. The deepest sounding—the forty-ninth after leaving the coast—was found to be 3,054 fathoms, while the mean depth was 2,562 fathoms. At a distance of 600 miles from the American coast the depth was found to be 494 fathoms, and at 1,050 miles, 780 fathoms. The average temperature below 1,200 fathoms was found to be about thirty-five degrees Fahrenheit. From Honolulu to Japan sixty casts were taken at intervals of about 50 miles. In the first 95 miles from Honolulu, the depth increased at nearly 162 ft. to a mile, reaching 2,418 fathoms in lat. 21° N., long. 159° 20' W. The average depth of all the casts taken during this voyage was 2,450 fathoms. Between the mountains (all but one of which are entirely submarine) the bed of the ocean was very level; the greatest depth was found at lat. 22° 44' N., long. 168° 23' E., 3,262 fathoms.

Bottom temperatures, as in other parts of the Pacific, range from 33°·2 F. to 34°·6 below 1,800 fathoms, whatever the addi-

tional depth. Between 1,200 and 1,800 fathoms the temperature rises slowly to about 35° at the former depth. From 1,200 fathoms to the surface the thermometer rose steadily; surface temperatures ranging from 70° to 76° F.

The voyage occupied twenty-eight days, and the weather was exceptionally favorable. There are only sixty-five inhabitants on Peele Island, and the "Tuscarora" was the first visit of a naval vessel for more than seventeen years; Commodore Perry stopped at the island in 1853.

ANTHROPOLOGY.

TROGLODYTES IN ALASKA.—In 1872, Mr. William H. Dall made some interesting discoveries of prehistoric remains in a cave on Amaknak Island, situated in Captain's Bay, Oonalaska, which he supposed exhausted the subject. In 1873, however, he found that he had left undisturbed a still lower stratum, and finally cleaned out the entire cave down to the bed rock. He ascertained that the whole interior of the cave had been painted over with a red pigment or chalky ore of iron, above which was a bed of organic mould about two feet in its greatest depth, in which were found three skeletons, surrounded by a rough sort of sarcophagus built of the jaws and ribs of whales, and around them were a large number of implements, especially of stone knives. This was covered in turn by a layer six inches or less in thickness of refuse material, the remains of repasts on marine animals, shell-fish, fish, and echini. Scattered irregularly over this were broken and worn implements of quite a different character from those found with the dead; and the whole indicated that this was only a resting-place of parties who used it temporarily while waiting an opportunity to cross the surf to the adjacent island. It was down to this lower stratum that the labors of the previous season had extended but without disturbing it.

A stratum of this latter portion was covered by a bed of shingle, evidently introduced by water, and supposed to be the actual bottom of the deposit. Mr. Dall is of the opinion that the skeletons found here are the oldest yet discovered in the Aleutian region, although not approaching in antiquity those discovered on Table Mountain, or the Neanderthal. He thinks the cave was first used as a burial-place, the mould over three skeletons having